Bats Resource Brief

Background Information

Looking up at the nighttime sky allows one to catch a glimpse of one of the most misunderstood and least studied mammals in Glacier and Waterton Lakes National Parks. There are over 1,100 documented species of bats worldwide, which constitutes approximately 20% of all mammal species. Although there are nine documented species of bats found in Glacier and seven in Waterton, little is known about their overall status in these parks.

All of the bats in Waterton and Glacier are effective insectivores. A single little brown bat (*Myotis lucifugus*) may consume 4 to 8 grams of insects per night, or roughly 50% of their body weight. Contrary to the common myth, bats are not blind and in fact do have good eyesight. However, the majority of species of bats do not rely on their eyesight to hunt at night. Instead, they depend on echolocation, or locating objects by reflected sound, to find food. Most of the bat species in Glacier and Waterton hibernate through winter in local roosts but three species, the hoary bat (*Lasiurus cinereus*), silver-haired bat (*Lasionycteris noctivagans*), and eastern red bat (*Lasiurus borealis*) are migratory and fly south for the winter. Bats are long-lived, but slow-reproducing mammals. Many species have an average lifespan of more than twenty years, giving birth to only one pup each year.

Although commonly associated with the transmission of rabies, less than 1% of the general bat population contracts the disease. Like all mammals, bats can contract rabies, but they do not naturally carry the virus.

Status and Trends

Up until recently, very little information has existed as to which species of bats are present in Waterton and Glacier, what the population size is, and how bats are utilizing the landscape. Three species of bats have recently been discovered in Glacier—California myotis (*Myotis californicus*), Yuma myotis (*Myotis yumanensis*), and eastern red bat. The hoary bat, one of Glacier's nine known species, is listed as a Species of Concern in Montana. In addition, the eastern red bat, silver-haired bat, and Yuma myotis are listed as Potential Species of Concern.

A researcher removes a little brown bat from a mist net. Trapping bats provides managers with critical information and helps in determining how environmental changes may affect bats in the park.

Threats

With such little information known about bats in Glacier and Waterton, the threats to bats are relatively unknown. An immediate concern is wind farms along migration corridors; ongoing national research is looking into the causes of wind farm mortality. Another threat is white-nose syndrome. The disease is spreading west since being discovered in New York in 2006, but it has not been documented in Montana or Alberta. The disease is identifiable by a white fungus (*Pseudogymnoascus destructans*) found growing on the nose and wing membranes of affected bats. It is believed that the fungus disrupts the body's homeostasis, leaving bats susceptible to dehydration, electrolyte depletion, and pH imbalance in their blood. With nearly a 100% mortality rate in some bat species, it is estimated that 5.7 million bats have died from white-nose syndrome. The disease is now found in 22 states and five Canadian provinces.

Park researchers use mist nets and acoustical surveys in Glacier and Waterton Lakes National Park to gather inventories of bats. The acoustical detectors can determine presence as well as indicate specific species by distinguishing between the bats' unique vocalizations.

Additionally, the surveys have also confirmed that bats are using one of Glacier's caves. Whether they use this cave as a roost site, or as a hibernaculum (location where they spend the winter hibernating), is unknown. Continued monitoring efforts will attempt to locate other potential hibernacula and roosting sites within the park. Information, such as temperature and humidity levels, has also been collected for other caves to determine if those caves could be used for bat hibernation.

So far, all of the bats that have been captured and released in Glacier have appeared healthy. Knowing where the highest concentrations of bats are, as well as where bats hibernate in the park, will help managers to make informed decisions if white-nose syndrome were to arrive in Montana.

Researchers set up a telescoping mist net. The net reaches about 30 feet high and spans the width of the road. Placing the nets in an open area such as this takes advantage of natural bat travel corridors.

Management Strategy

The main goals of continued bat inventory and monitoring are to determine which species are found in the Glacier and Waterton Lakes National Parks, obtain the status of the population of each of those species, develop a better understanding of cave locations that are active or are potential hibernacula, and monitor individuals and hibernacula for white-nose syndrome. Waterton completed trapping bats in 2012, but will continue to survey using acoustic monitoring. Biologists in Glacier plan to continue inventorying and monitoring bats into the future in order to track the health of the park's bat population. By continuing to monitor bats, managers can determine the potential threats to this unique mammal and allow visitors a chance to view the night skies with a better understanding of these elusive flying mammals.

Resources For More Information

Glacier National Park Staff

- Lisa Bate, Wildlife Biological Science Technician
- John Waller, Wildlife Biologist

Documents and web sites

- Montana Field Guide – http://fieldguide.mt.gov/displaySpecies.aspx?family=Vespertilionidae
- For a video on bat research in Glacier National Park – http://vimeo.com/53609800
- Bat Conservation International – http://batcon.org/
- A Coordinated Response to the Devastating Bat Disease – http://whitenosesyndrome.org

The Crown of the Continent Research Learning Center

Phone: 406-888-5827

Email: melissa_sladek@nps.gov

Websites: www.crownscience.org, http://www.nps.gov/glac/naturescience/ccrlc.htm